The Sectoral Solution to Climate Change

Transport

The global transport sector has the highest reliance on fossil fuels of any sector. It is responsible for 8.7 gigatonnes of emissions, which represents 15 per cent of the global total emissions. Yet its emissions are growing faster than any other sector. To achieve a low – and ultimately no emissions transport sector – intervention should focus on measures such as:

Better city design allowing more walkability, a shift to more efficient modes of transport such as public transport, and a switch from fossil fuels to electric mobility, which would also provide important air quality and related health benefits.

The escalating impacts of climate change are already posing severe risks to transport infrastructure, and so adaptation solutions are urgently needed to ensure resilience in the face of increasingly extreme weather events.

Key messages

- Climate change poses major risks to the transport sector, such as **temperature changes** (e.g., melting road surfaces), **sea-level rise** (flooding of coastal transport systems), **changes in precipitation** (e.g., disruption of transport on inland waterways), and **increasing storms** (e.g., damage to assets such as bridges, ports and airports).

- Transport sector emissions are growing faster than any other sector. The sector is still **largely dependent on fossil fuels**, especially in **developing countries**, which is where the growth in transportation is mainly taking place. The predictions are that the transport sector's emissions **will continue growing** in the short and medium term. Decarbonizing the transport sector will require a **shift away from fossil fuels** and a **shift in transport demand**.

- To achieve the necessary emissions reductions a combined set of measures is needed to **shift to cleaner and more efficient transport modes**. Measures should include: development of global and regional targets and programs to switch all motor vehicles to electric; all large and medium-sized cities should have mass transit systems, such as light rail, metro or bus rapid transit systems; and all cities should systematically invest in walking and cycling facilities, so that all urban road provide safe walking and cycling infrastructure. Urban planning should also include a reduction of transport demand and previsions of transit-oriented development.

- While we work on deeper changes towards decarbonization, we need to reduce emissions from the current vehicle stock, with **effective inspection and maintenance programmes**, **standards for cleaner fuels and vehicles**, and **bans on imports of older vehicles**, which will also help reduce air pollution.

- And while almost three quarters of transport emissions come from the road sector, **aviation and maritime emissions** are also increasing rapidly and those industries need to set roadmaps towards climate neutrality. Between 2015 and 2019, the Arctic saw a 85 per cent rise in black carbon due to increased shipping traffic.

- **Technologies and policies** need to be introduced worldwide, avoiding for example the electrification of vehicle fleets in the global north results in increased export of old fossil fuel vehicles to the global south.

- Existing measures to improve fuel and vehicle standards are already reducing black carbon emissions but require the expansion of regulations in low- and middle-income countries.

- **Climate risk and vulnerability assessments** should be incorporated into planning the design, construction and operation of transport infrastructure, ensuring that roadways, railways and ports can withstand extreme weather conditions.

SHOUT
SHARE
IT

Further Reading

Electric mobility – overview of UNEP's global electric mobility programme

Used Vehicles and The Environment – Progress and updates 2021

Walking and Cycling Programs around the World

Enhancing NDCs: Opportunities in Transport

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Key data

- Road transport currently accounts for **74 per cent of total transport CO2 emissions** (IPCC 2021)
- The global vehicle fleet is set **to double**, from about 1.2 billion vehicles today to an estimated 2.5 billion vehicles by 2050 (IEA 2019)
- **90 per cent of this growth** will take place in non-OECD countries (IEA 2019). The share of non-OECD countries transport GHG emissions is 36 per cent now and will increase rapidly to **46 per cent by 2030** if current trends continue (IPCC 2021)
- The annual cost to road and railway assets from extreme weather events is estimated to be between **$3.1–22 billion globally**, 73 per cent of which is expected to be the result of surface and river flooding (Koks 2019).
- More than **80 per cent of the world's goods trade** is transported via **ocean routes**, which means disturbances at ports from severe weather conditions can significantly impact the broader economy (UNCTAD 2021)
- Infrastructure is responsible for **88 per cent of the forecasted costs** for adapting to climate change (UNEP 2021)
- The overall net benefit of investing in climate-resilient infrastructure in developing countries could amount to **$4.2 trillion** – a benefit of $4 for every dollar invested (World Bank 2019)
- **470,000 annual premature deaths** can be avoided in 2050 by introducing low and ultra-low sulphur fuels and vehicle emission standards. (CCAC)
- Transport alone accounts for over **20 per cent of global black carbon emissions**. (CCAC)
- Successful implementation of **the Global Strategy to Introduce Low Sulfur Fuels and Cleaner Diesel Vehicles strategy** by the Climate & Clean Air Coalition would reduce cumulative black carbon emissions by 7.1 million tons by 2050, leading to 85 per cent fewer black carbon emissions. This would reduce carbon dioxide equivalent emissions by 14 trillion miles of travel by passenger vehicles. (CCAC)